them, (*viz.* with $1\frac{11}{16}$, $2\frac{3}{8}$, $2\frac{11}{12}$, and $3\frac{3}{8}$ Inches, and therefore the Theory of deriving these Rings from the thickness of the plate of Glass of which the Speculum was made, and from the obliquity of the emerging rays agrees with the Observation. In this computation I have equalled the Diameters of the bright Rings made by Light of all Colours, to the Diameters of the Rings made by the bright yellow. For this yellow makes the brightest part of the Rings of all Colours. If you desire the Diameters of the Rings made by the Light of any other unmixed Colour, you may find them readily by putting them to the Diameters of the bright yellow ones in a subduplicate proportion of the intervals of the fits of the rays of those Colours when equally inclined to the refracting or reflecting surface which caused those fits, that is, by putting the Diameters of the Rings made by the rays in the extremities and limits of the seven Colours, red, orange, yellow, green, blue, indico, violet, proportional the Cube-roots of the numbers, 1, $\frac{8}{9}$, $\frac{5}{6}$, $\frac{3}{4}$, $\frac{2}{3}$, $\frac{3}{5}$, $\frac{9}{16}$, $\frac{1}{2}$, which express the lengths of a Monochard sounding the notes in an Eight: For by this means the Diameter of the Rings of these Colours will be found pretty nearly in the same proportion to one another, which they ought to have by the fifth of these Observations.

And thus I satisfied my self that these Rings were of the same kind and original with those of thin plates, and by consequence that the fits or alternate dispositions of the rays to be reflected and transmitted are propagated to great distances from every reflecting and refracting surface. But yet to put the matter out of doubt I added the following Observation.

OBS.

OBS. IX.

If these Rings thus depend on the thickness of the plate of Glass their Diameters at equal distances from several Speculums made of such concavo-convex plates of Glass as are ground on the same Sphere, ought to be reciprocally in a subduplicate proportion of the thicknesses of the plates of Glass. And if this proportion be found true by experience it will amount to a demonstration that these Rings (like those formed in thin plates) do depend on the thickness of the Glass. I procured therefore another concavo-convex plate of Glass ground on both sides to the same Sphere with the former plate: Its thickness was $\frac{5}{62}$ parts of an Inch; and the Diameters of the three first bright Rings measured between the brightest parts of their orbits at the distance of 6 Feet from the Glass were $3.\ 4\frac{1}{8}.\ 5\frac{1}{8}$ Inches. Now the thickness of the other Glass being $\frac{1}{4}$ of an Inch was to thickness of this Glass as $\frac{1}{4}$ to $\frac{5}{62}$, that is as 31 to 10, or 310000000 to 100000000, and the roots of these numbers are 17607 and 10000, & in the proportion of the first of these roots to the second are the Diameters of the bright Rings made in this Observation by the thinner Glass, $3.\ 4\frac{1}{8}.\ 5\frac{1}{8}$ to the Diameters of the same Rings made in the third of these Observations by the thicker Glass $1\frac{11}{16}.\ 2\frac{3}{8}\ 2\frac{11}{12}$, that is, the Diameters of the Rings are reciprocally in a subduplicate proportion of thicknesses of the plates of Glass.

So then in plates of Glass which are alike concave on one side, and alike convex on the other side, and alike quick-silvered on the convex sides, and differ in nothing but